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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/813,171

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Hiroshi Sasaki

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01/29/2007

WHITHAM, CURTIS & CHRISTOFFERSON & COOK, P.C.

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SUITE 340

RESTON, VA 20190

EXAMINER

BOATENG, ALEXIS ASIEDUA

ART UNIT

PAPER NUMBER

2838

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/29/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/813,171

Applicant(s)

SASAKI, HIROSHI

Examiner

Alexis Boateng

Art Unit

2838

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5,6 and 8-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,5,6 and 8-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

This action should replace the previous office action mailed 11/02/06, which was a final rejection. The finality has been withdrawn and been replaced with the present non-final rejection.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rahman (U.S. 5,990,664) in view of Gladstein (U.S. 5,341,503).

Regarding claim 1, Rahman discloses wherein a power source circuit for a cell for controlling transfer of electrical energy from said cell to loads, wherein a device employing said power source circuit is operated in a manner that, when a discharge voltage of said cell becomes lower than an operation lower limit voltage of said device to be operated, a voltage output from said power source circuit for said cell is made higher than said operation lower limit voltage of said device by using a voltage increasing unit (column 5 lines 4 – 26; figure 3b item 2: voltage increasing unit is the boost converter). Rahman discloses the invention as previously as claimed, but does not disclose the remainder. Gladstein discloses in column 7 lines 13 – 50 wherein the rate of battery voltage drop is measured and the discharge curve is computed. At the time of invention, it

would have been obvious to a person of ordinary skill in the art to modify the Rahman system with the Gladstein system so that user knows how much time is left until the battery is fully discharged.

3. Claims 3, 5, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitagawa (U.S. 6,414,403) in view of Gladstein (U.S. 5,341,503).

Regarding claim 3, Kitagawa discloses wherein a power source for a cell for controlling transfer of electric energy from said cell to loads, said power source circuit comprising:

- a cell voltage detecting circuit to detect a voltage of said cell (figure 1 item 6),

- a discharge controlling circuit (figure 3 item 25),

- an output voltage detecting circuit (figure 1 item 6),

- a step-up DC-DC converter (figure 1 item 4),

- a switching circuit to switch positive electrode of said cell to either of an output terminal of said power source circuit or an inputting section of said step-up DC-DC converter (figure 1 item 4),

- and a power storing section mounted in an outputting section of said power source circuit (figure 3 item C2),

wherein a device employing said power source circuit is operated in a manner that, when a discharge voltage of said cell becomes lower than an operation lower limit voltage of said device to be operated, a voltage output from said power source circuit for said cell is made higher than said operation lower

limit voltage of said device by using said step-up DC-DC converter (column 4 lines 32 – 55). Kitagawa discloses the invention as previously claimed, but does not disclose the remainder. Gladstein discloses in column 7 lines 13 – 50 wherein the rate of battery voltage drop is measured and the discharge curve is computed. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Kitagawa system with the Gladstein system so that user knows how much time is left until the battery is fully discharged.

Regarding claim 5 and 8, Kitagawa discloses wherein said power storing section comprises an electric double layer capacitor (figure 3 item C2).

Regarding claim 6, Kitagawa discloses wherein a power source for a cell for controlling transfer of electric energy from said cell to loads, said power source circuit comprising:

- a cell voltage detecting circuit to detect a voltage of said cell (figure 1 item 6),
- a control circuit (figure 3 item 25),
- an output voltage detecting circuit (figure 1 item 6),
- a step-up DC-DC converter (figure 1 item 4),
- an inductor (figure 3 item L1),
- two or more switching circuits (figure 1 item 4),
- and a power storing section mounted in an outputting section of said power source circuit (figure 3 item C2),

wherein a device employing said power source circuit is operated in a manner that, when a discharge voltage of said cell becomes lower than an operation lower limit voltage of said device to be operated, a voltage output from said power source circuit for said cell is made higher than said operation lower limit voltage of said device by using said step-up DC-DC converter (column 4 lines 32 – 55). Kitagawa discloses the invention as previously claimed, but does not disclose the remainder. Gladstein discloses in column 7 lines 13 – 50 wherein the rate of battery voltage drop is measured and the discharge curve is computed. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Kitagawa system with the Gladstein system so that user knows how much time is left until the battery is fully discharged.

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki (U.S. 2003/0030413) in view of Rahman (U.S. 5,990,664) and in further view of Gladstein (U.S. 5,341,503).

Regarding claim 9, Saeki discloses in figure 11, wherein the power source is comprised within case, item 300. Saeki discloses the invention as previously claimed, but does not disclose the remainder. Rahman discloses in column 5 lines 4 – 26; figure 3b item 2 wherein the voltage is increased by a boost converter when the voltage of the battery has discharged to a point below a certain level. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Saeki system with the Rahman system so that when the battery has discharged to a low level, the battery can still provide

power to the device. Saeki and Rahman disclose the invention as previously claimed, but does not disclose the remainder. Gladstein discloses in column 7 lines 13 – 50 wherein the rate of battery voltage drop is measured and the discharge curve is computed. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Saeki and Rahman system with the Gladstein system so that user knows how much time is left until the battery is fully discharged.

5. Claims 10, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saeki (U.S. 2003/0030413) in view of Rahman (U.S. 5,990,664) and in further view of Gladstein (U.S. 5,341,503) as applied to claim 9 above, and in further view of Garstein (U.S. 6,163,131).

Regarding claims 10, 12, and 14 both Saeki and Rahman disclose a secondary battery in figure 3 items E1-2 and in column 2 lines 11 – 21. The two references fail to disclose a primary battery. Garstein discloses in column 3 line 46 – column 4 line 6 wherein a primary (non-rechargeable) battery may be used. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Saeki and Rahman system with the Garstein system so that the application can be used on a wide variety of devices.

6. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitagawa (U.S. 6,414,403) in view of Saeki (U.S. 2003/0030413).

Regarding claim 11, Kitagawa discloses claimed invention except wherein the power source is comprised within the case. Saeki discloses in figure 11, wherein

the power source is comprised within case, item 300. Kitagawa discloses wherein a power source for a cell for controlling transfer of electric energy from said cell to loads, said power source circuit comprising a cell voltage detecting circuit to detect a voltage of said cell (figure 1 item 6), a discharge controlling circuit (figure 3 item 25), an output voltage detecting circuit (figure 1 item 6), a step-up DC-DC converter (figure 1 item 4), a switching circuit to switch positive electrode of said cell to either of an output terminal of said power source circuit or an inputting section of said step-up DC-DC converter (figure 1 item 4), and a power storing section mounted in an outputting section of said power source circuit (figure 3 item C2), wherein a device employing said power source circuit is operated in a manner that, when a discharge voltage of said cell becomes lower than an operation lower limit voltage of said device to be operated, a voltage output from said power source circuit for said cell is made higher than said operation lower limit voltage of said device by using said step-up DC-DC converter (column 4 lines 32 – 55). At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Kitagawa system with the Saeki system so that the battery pack can be protected from damage by the housing.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitagawa (U.S. 6,414,403) in view of Saeki (U.S. 2003/0030413) in further view of Gladstein (U.S. 5,341,503).

Regarding claim 13, Kitagawa discloses claimed invention except wherein the power source is comprised within the case. Saeki discloses in figure 11, wherein the power source is comprised within case, item 300. Kitagawa discloses wherein a power source for a cell for controlling transfer of electric energy from said cell to loads, said power source circuit comprising a cell voltage detecting circuit to detect a voltage of said cell (figure 1 item 6), a discharge controlling circuit (figure 3 item 25), an output voltage detecting circuit (figure 1 item 6), a step-up DC-DC converter (figure 1 item 4), a switching circuit to switch positive electrode of said cell to either of an output terminal of said power source circuit or an inputting section of said step-up DC-DC converter (figure 1 item 4), an inductor (figure 3 item L1), two or more switching circuits (figure 1 item 4), and a power storing section mounted in an outputting section of said power source circuit (figure 3 item C2), wherein a device employing said power source circuit is operated in a manner that, when a discharge voltage of said cell becomes lower than an operation lower limit voltage of said device to be operated, a voltage output from said power source circuit for said cell is made higher than said operation lower limit voltage of said device by using said step-up DC-DC converter (column 4 lines 32 – 55). At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Kitagawa system with the Saeki system so that the battery pack can be protected from damage by the housing. Kitagawa and Saeki disclose the invention as previously claimed, but does not disclose the remainder. Gladstein discloses in column 7 lines 13 – 50

wherein the rate of battery voltage drop is measured and the discharge curve is computed. At the time of invention, it would have been obvious to a person of ordinary skill in the art to modify the Saeki and Rahman system with the Gladstein system so that user knows how much time is left until the battery is fully discharged.

Response to Arguments

8. Applicant's arguments with respect to claims 1, 3, 5, 6, 8, 9, and 13 have been considered but are moot in view of the new ground(s) of rejection. **Regarding claims 11 and 13**, the applicant argues wherein claim the claim requires a "switching circuit to switch a positive electrode of said cell to either of an output terminal of said power source circuit or an inputting section of said step-up DC-DC converter." Kitagawa discloses in figure 1 wherein switches 1 and 2 switch between the battery and inputting section of the DC-DC converter. The applicant also argues wherein the switch is necessarily separate from the DC-DC converter and the switch "toggles between the output terminal and the DC – DC converter. The claims do not appear to require wherein the switch is separate from the DC-DC converter nor wherein the switches "toggle" between the two elements. Therefore the Kitagawa reference reads upon the claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexis Boateng whose telephone number is (571) 272-5979. The examiner can normally be reached on 8:30 am - 6:00 pm, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Karl Easthom can be reached on (571) 272-1989. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AB


Adolf Deneke Bernane
Primary Examiner